

# Forward Pixel Auxiliary Chips

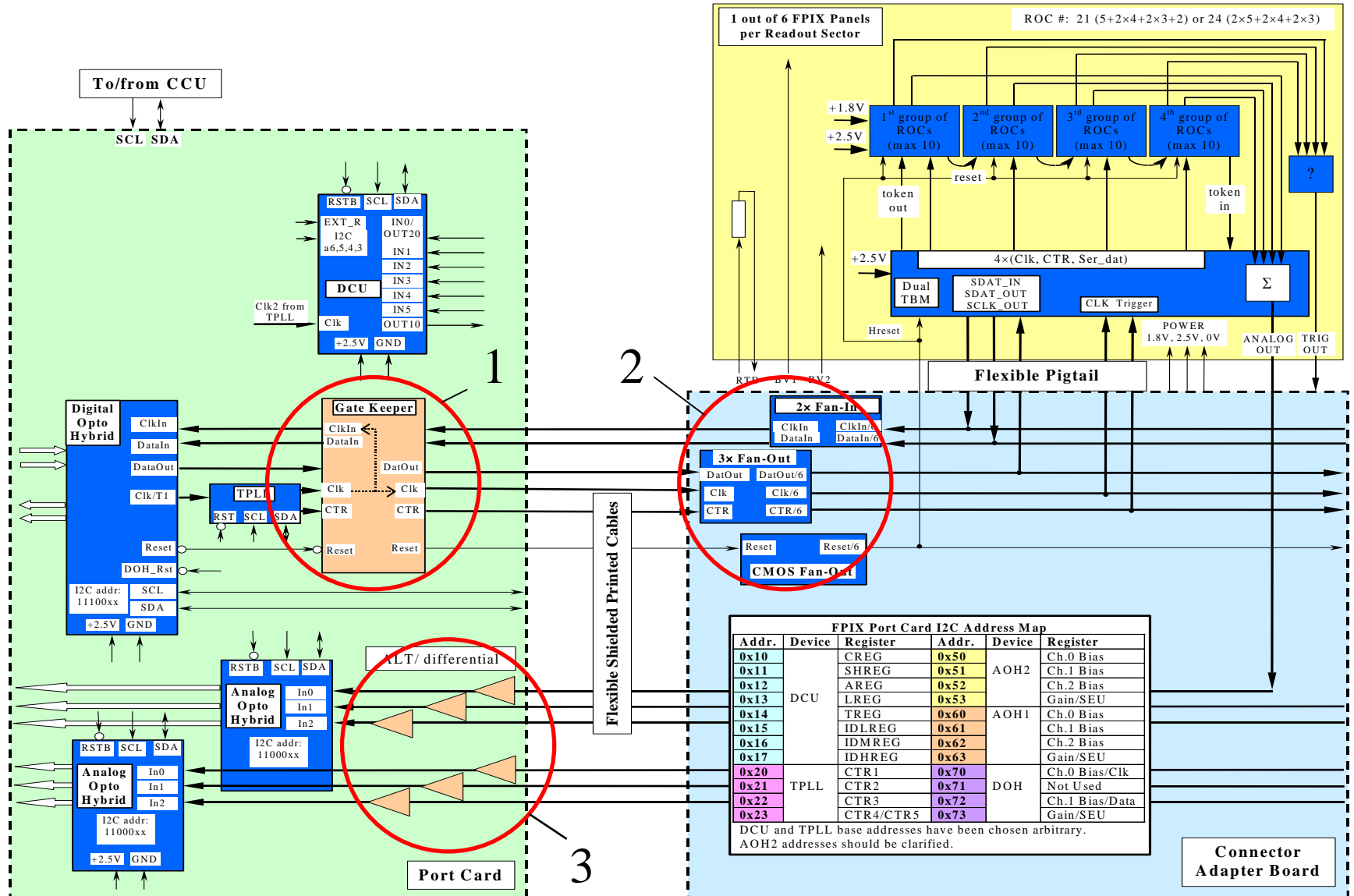
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# Terminology problem

- Originally (as of June 2004) three auxiliary chips are mentioned by PSI:
  - Gate Keeper chip (1)
  - LCDS driver chip (2)
  - ALT chip (3)
- Latest list (as of September 2004) includes HDI-driver chip, but not Gate Keeper chip
- Used older list (as of June 2004)

# CMS Forward Pixel Front-End



# Comparison of Pixel front-ends

Barrel front-end	Forward front-end
Gate Keeper	Modified Gate Keeper
LCDS Driver	Fan-In/Fan-Out chips
ALT chip	ALT chip

# Gate Keeper chip changes

- Add Return Clock Input pins to maintain SDA/SCL phase for the TBM response
- Add Mode Control pin to switch between barrel and forward modes
- Add transparent SDA mode for forward front-end
- Remove termination resistors at LCDS inputs

# Fan-In/Fan-Out chip features

- Forward Pixel proposes to use Fan-In/Fan-Out chips instead of the LCDS driver chip
  - Simple buffer with six-fold Fan-Outs for CLK, CTRL and SDA signals i.e. Fan-Out chip
  - Simple OR with six-fold OR inputs for Return CLK and return SDA signals i.e. Fan-In chip
  - CMOS buffer and Fan-Out for Reset signal i.e. Reset chip

# Analog Level Translator

- Needed to convert TBM low level analog signal to one compatible with AOH levels
- Seems to be compatible with forward front-end design (considering as little as we know about this chip)

# Current Status

Chip	Design	Packaging	Testing
Gate Keeper	PSI	PSI or FNAL	PSI or FNAL
Fan-In/Fan-Out	Rutgers	Rutgers	FNAL
ALT	PSI	PSI or FNAL	PSI or FNAL